Abstract f the Disclosure

Thousands of patients prone to irregular and sometimes life threatening heart rhythms have miniature heart-monitoring devices, such as defibrillators and cardioverters, implanted in their chests. These devices detect onset of abnormal heart rhythms and automatically apply one or more shocks to their hearts. When properly sized and timed, the shocks restore normal heart function without human intervention. A critical part of these devices is the monitoring circuitry, which includes a microprocessor and stored instructions, or algorithms, that govern how the devices interpret and react to electrical signals indicative of abnormal heart rhythms. Often, the algorithms are too simple or too complex. Algorithms that are too simple lead to unnecessary shocking of the heart, while those that are too complex consume considerable battery power. Accordingly, the inventor devised a relatively simple and accurate algorithm for determining appropriate therapy options. One version of the algorithm computes three statistics --- a range statistic, a minimum interval statistic, and a dispersion index--- from a set of depolarization intervals. This algorithm defines the range statistic as the difference between largest and smallest depolarization intervals, the minimum interval as the smallest of the intervals, and the dispersion index as the standard deviation of the intervals. A scalar interval dispersion assessment, based on the three statistics, is then compared to a threshold to identify a rhythm as a flutter or fibrillation. The three statistics can also define a point in a three-dimensional space, with rhythm identification based on relative position of the point and a surface in the space.

"Express Mail" mailing label number: EV299684215US
Date of Deposit: January 19, 2004
This paper or fee is being deposited on the date indicated above with the United States Postal Service pursuant to 37 CFR 1.10, and is addressed to The Commissioner for Patents, Mail Stop Patent Application, P.O. Box 1450, Alexandria, VA 22313-1450.